

## REMARKS

Upon entry of this response and amendment, claims 21-23 and 25-33 are currently pending in this application. Claim 21 is an independent claim drawn to a hybrid ultra reliable power generating system, with claims 22-23 and 25-27 depending therefrom. Claims 28, 32 and 33 are independent claims drawn to a method of generating continuous power using a hybrid ultra reliable power generating system, with claims 29-31 depending from claim 28. Claim 21 has been amended to incorporate the features of claim 24 and claim 33 has been amended to incorporate the features of claim 34. Claims 24 and 34 have been cancelled without prejudice or disclaimer to the subject matter contained therein. Accordingly, Applicant submits that no new matter within the meaning of 35 U.S.C. 132 is introduced by the claim amendments.

Claims 21-24, 27-31, and 34 stand rejected as being anticipated by Amir et al. (U.S. Patent No. 5,497,624); and, claims 25-26 and 32-33 stand rejected as being obvious over Amir et al.

The following remarks are made to differentiate the presently claimed invention over the cited references, and are made in anticipation that they will place the application in condition for allowance. Early recognition of allowance of the application is earnestly requested.

**1. Rejection of Claims 21-24, 27-31 and 34**

**Under 35 U.S.C. 102(b)**

Claims 21-24, 27-31 and 34 stand rejected under 35 U.S.C. 102(b) as being anticipated by Amir et al. (U.S. Patent No. 5,497,624, the '624 patent) for the reasons set forth in the Office Action.

**RESPONSE**

Applicant respectfully traverses this rejection and respectfully requests reconsideration and withdrawal thereof.

To establish an anticipation rejection, every claimed element must be found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); See also, MPEP § 2131. Applicant respectfully submits that the Examiner has not met this burden.

Independent claim 21 is drawn to a hybrid ultra reliable power generating system comprising: a) a primary power unit producing electric power that is supplied to a load; and b) a secondary power unit in the form of a closed cycle vapor turbine (CCVT) system which is heated by the rejected heat of the primary power unit and produces electric power that is supplied to a load, wherein working fluid in the vaporizer of the (CCVT) is heated by the heat rejected by the primary power unit, the improvement of said power generating system being that said secondary power unit is capable of producing

only approximately 5 to 15% of the electric power that is produced by the primary power unit; and wherein said CCVT includes a burner that combusts the same fuel as supplied to the primary power unit and supplies sufficient heat so that the CCVT continues to produce approximately 5 to 15% of power produced by said primary power unit upon a power outage of the primary power unit. Likewise, independent claim 28 is directed to the method equivalent of claim 21 and contains the same features therein, including the feature that the secondary power unit produces only approximately 5-15% of the electric power produced by the primary power unit.

Applicant respectfully submits that the '624 patent fails to disclose all of the claimed features, and therefore does not anticipate the claims.

The '624 patent discloses a power plant operating on steam for producing electric power including a plurality of integrated power plant unit modules each having a steam turbine responsive to the steam and producing heat depleted steam, a steam condenser associated with the steam turbine operating at a pressure no less than atmospheric pressure for collecting non-condensable gases and condensing the heat depleted steam and vaporizing organic fluid applied to the condenser, a closed organic Rankine cycle turbine operating on the organic fluid and a single electric generator driven by the steam turbine and the organic Rankine cycle turbine for producing electric power, and also including means for

supplying in parallel the steam to each steam turbine in each of the modules. a hybrid power system comprising a pair of energy converters operating on a closed Rankine cycle. However, Applicant respectfully submits that the '624 patent fails to teach each of the claimed features of the present application.

As an initial matter, Applicant submits that to look at a geothermal power plant and the steam exiting the geothermal steam turbine of the geothermal power plant as waste heat is somewhat unusual to say the least. Furthermore, if for sake of argument, one were to take the Examiner's position, even so, one does not achieve the teachings of the present claims. This is because, in accordance with the '624 patent, when the power output of the power plant disclosed with reference to Fig. 1 in the '624 patent is lowered, not only is the power output of the ORC power plant modules reduced, but also the power output of the steam turbine itself (see column 3, lines 52-67 of the '624 patent) by controlling both control valves 22a, 22b and 22c as well as control 13 (see Fig. 1 of the '624 patent).

The teachings of the '624 patent are different from the present claims since in the present claims only the output of the secondary power unit can change (apart from the case when the primary power unit becomes unoperable). In addition, normally, waste heat means heat exhaust from a power plant or an industrial plant operating at temperatures where a combustion process is

involved. There is no disclosure in the '624 patent of the power capacity of steam turbine 15.

Furthermore, Applicant considers it important that the present claims call for "a primary power unit" and "a secondary power unit". It is difficult to understand the position where a geothermal steam turbine and an ORC power plant module are "power units" as disclosed and claimed in the present case.

In addition, Applicant respectfully does not agree with the Examiner's assertion on page 2 of the Office Action that "the waste heat of the steam turbine 15 is less than the main heat source, [so] the power produced by the three Rankine cycles must be less than the steam turbine." In particular, Applicant draws the Examiner's attention to col. 4, lines 63-65 of the '624 patent, where it is stated: "for example, the capacity of steam turbine 60a may be 1.5 MW with the capacity of organic vapor turbine 70a also being 1.5 MW." Applicant respectfully submits that this contradicts the Examiner's assertion.

Therefore, Applicant respectfully submits that the '624 patent does not achieve the teachings of the present claims, and thus fails to disclose all of the claimed features. Thus, Applicant submits that the '624 patent fails to disclose all of the claimed features from independent claims 21 and 28, and those claims that depend therefrom.

Accordingly, Applicant respectfully submits that the '624

patent does not anticipate the claims. Applicant respectfully requests reconsideration and withdrawal of the rejection.

## **2. Rejection of Claims 25-26 and 32-33 Under 35 U.S.C. 103(a)**

Claims 25-26 and 32-33 stand rejected under 35 U.S.C. 103(a) as being obvious over the '624 patent for the reasons stated in the Office Action.

### **RESPONSE**

Applicant respectfully traverses this rejection and requests reconsideration and withdrawal thereof.

The reference of record, the '624 patent, does not teach or suggest applicants' inventive subject matter as a whole, as recited in the amended claims. Further, there is no teaching or suggestion in this reference which would lead the ordinary skilled artisan to modify the reference to derive the subject matter as defined in the amended claims.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of nonobviousness.

As is discussed above with respect to the anticipation rejection, the arguments of which are hereby incorporated, the '624 patent fails to disclose each of the elements of claim 21, from which rejected claims 25 and 26, respectively, depend. Thus, Applicant submits that the '624 patent also fails to teach and disclose, and render obvious, the elements claims 25 and 26, which add further features to claim 21.

As indicated previously, independent claim 21 is drawn to a hybrid ultra reliable power generating system comprising: a) a primary power unit producing electric power that is supplied to a load; and b) a secondary power unit in the form of a closed cycle vapor turbine (CCVT) system which is heated by the rejected heat of the primary power unit and produces electric power that is supplied to a load, wherein working fluid in the vaporizer of the (CCVT) is heated by the heat rejected by the primary power unit, the improvement of said power generating system being that said secondary power unit is capable of producing only approximately 5 to 15% of the electric power that is produced by the primary power unit; and wherein said CCVT includes a burner that combusts the same fuel as supplied to the primary power unit and supplies sufficient heat so that the CCVT continues to produce approximately 5 to 15% of power produced by said primary power unit upon a power outage of the primary power unit. Likewise, independent claim 28 is directed to the method equivalent of claim 21 and contains the

same features therein, including the feature that the secondary power unit produces only approximately 5-15% of the electric power produced by the primary power unit.

Applicant respectfully submits that the '624 patent fails to disclose all of the claimed features, and therefore the Examiner has failed to prove a prima facie case of obviousness.

Applicant respectfully submits that it is not obvious to replace a geothermal steam turbine with a molton carbonate fuel cell, i.e. it is not clear from the '624 patent that there will be sufficient heat in a molton carbonate fuel cell waste heat for the secondary CCVT to provide 10-15% of the output of the primary power source.

Furthermore, as is discussed above, the '624 patent discloses a power plant operating on steam for producing electric power including a plurality of integrated power plant unit modules each having a steam turbine responsive to the steam and producing heat depleted steam, a steam condenser associated with the steam turbine operating at a pressure no less than atmospheric pressure for collecting non-condensable gases and condensing the heat depleted steam and vaporizing organic fluid applied to the condenser, a closed organic Rankine cycle turbine operating on the organic fluid and a single electric generator driven by the steam turbine and the organic Rankine cycle turbine for producing electric power, and also including means for supplying in parallel the steam to each



steam turbine in each of the modules. a hybrid power system comprising a pair of energy converters operating on a closed Rankine cycle. However, Applicant respectfully submits that the '624 patent fails to teach each of the claimed features of the present application.

Additionally, Applicant reiterates that to look at a geothermal power plant and the steam exiting the geothermal steam turbine of the geothermal power plant as waste heat is somewhat unusual to say the least. Furthermore, if for sake of argument, one were to take the Examiner's position, even so, one does not achieve the teachings of the present claims. This is because, in accordance with the '624 patent, when the power output of the power plant disclosed with reference to Fig. 1 in the '624 patent is lowered, not only is the power output of the ORC power plant modules reduced, but also the power output of the steam turbine itself (see column 3, lines 52-67 of the '624 patent) by controlling both control valves 22a, 22b and 22c as well as control 13 (see Fig. 1 of the '624 patent).

The teachings of the '624 patent are different from the present claims since in the present claims only the output of the secondary power unit can change (apart from the case when the primary power unit becomes unoperable). In addition, normally, waste heat means heat exhaust from a power plant or an industrial plant operating at temperatures where a combustion process is

involved. There is no disclosure in the '624 patent of the power capacity of steam turbine 15.

Further still, Applicant considers it important that the present claims call for "a primary power unit" and "a secondary power unit". It is difficult to understand the position where a geothermal steam turbine and an ORC power plant module are "power units" as disclosed and claimed in the present case.

In addition, Applicant respectfully does not agree with the Examiner's assertion on page 2 of the Office Action that "the waste heat of the steam turbine 15 is less than the main heat source, [so] the power produced by the three Rankine cycles must be less than the steam turbine." In particular, Applicant draws the Examiner's attention to col. 4, lines 63-65 of the '624 patent, where it is stated: "for example, the capacity of steam turbine 60a may be 1.5 MW with the capacity of organic vapor turbine 70a also being 1.5 MW." Applicant respectfully submits that this contradicts the Examiner's assertion.

Therefore, Applicant respectfully submits that the Examiner has failed to make a *prima facie* case of obviousness since the reference fails to teach each of the claimed features. In addition, there is no motivation within the reference to modify it in an attempt to achieve the presently claimed invention.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims as being obvious over

'535 patent.

### CONCLUSION

In view of the foregoing, applicants respectfully request the Examiner to reconsider and withdraw the all pending rejections, and to allow all of the claims pending in this application.

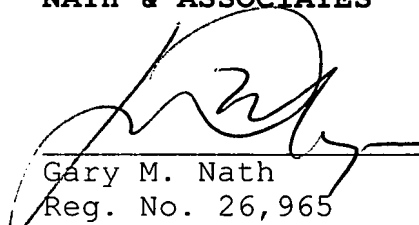
If the Examiner has any questions or comments regarding this matter, he is welcomed to contact the undersigned attorney at the below-listed number and address.

Respectfully submitted,

**NATH & ASSOCIATES**

Date:

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